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Bank of Ireland
Global Markets



Emissions handbook

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introduction

Welcome to the first UK edition of 'The Bank of Ireland Global Markets Emissions Handbook'

The introduction of the European Union Emissions Trading Scheme (EUETS) has resulted in two years of high activity for the Emissions markets. With the arrival of a statutory requirement for affected companies to manage their carbon dioxide emissions, the reality of both a financial and reputational exposure has become apparent for many companies and necessitates careful consideration. We can assist you with this process.

The emissions market is relatively unique in that the political and regulatory background is still in its infancy and seemingly small announcements can have a dramatic impact on the underlying prices as we saw last summer. This makes budgeting very difficult and careful risk management attractive. Bank of Ireland aims to deliver appropriate solutions to its UK clients that are participants (and even to some that are voluntary participants), for exposures of all magnitudes, enabling them to deal with these in an optimal way.

The Bank of Ireland Global Emissions Handbook is designed to provide you with a concise guide to the emissions market. We begin by looking at the origins of the scheme, review the current market and outline suggested approaches to managing exposure. We also consider how the EUETS fits into the global emissions markets. The documentation, tax and accounting issues are then examined.

We conclude with a useful directory of information sources and a glossary of some of the more common terms.

I trust that you will find this publication an indispensable guide and point of reference.

Should you require any further information, or wish to expand on any of the points raised, Bank of Ireland Global Markets as a specialist in this area remains committed to helping your company negotiate this new and dynamic market to meet your specific needs.

A handwritten signature in blue ink that reads "Peter Goshawk". The signature is written in a cursive style and is underlined with a single horizontal stroke.

Peter Goshawk

Managing Director

Bank of Ireland Global Markets UK

overview

overview

Global Warming

The evidence that climate change is underway has been well documented and increasingly highlighted over the last decade. The findings of various scientific studies have shown incontrovertible proof that the global community is wreaking havoc with the world in which we live:

- Average sea levels rose by up to 0.2m in the last century
- 1998 was the hottest year globally since records began
- Snow cover in the Northern Hemisphere has decreased by 10% since 1968
- 11 of the last 12 years rank among the 12 warmest years on record for global temperatures.

kyoto protocol

It was against this backdrop that the United Nations Framework Convention for Climate Change was introduced in 1992 at the Rio earth summit. The debate on global warming and climate change continued until the formulation of the Kyoto Protocol in 1997.

Under the Protocol, industrialised countries agreed to collectively reduce the amount of carbon dioxide emitted by an average of 5.2% below 1990 levels by 2008/12. Ratification of the Protocol came in 2005 when Russia signed up to the accord. The significance of this move lay in the fact that for the Protocol to come into force, countries accounting for over 55% of global emissions had to agree to be bound by its rules.

The final emissions percentage was just below 62%, representing over 166 countries, with the United States and Australia amongst those nations notably refusing to ratify the treaty.

In ratifying the Protocol, the European Union has undertaken to reduce emissions to 8% below 1990 levels.

The climate change legislation categorises countries as follows:

Annex I Countries

Comprising the 36 industrialised countries plus 5 economies in transition (from controlled market to free market) listed in the UN Climate Change Convention.

Annex II Countries

All original OECD countries plus the EU, bound by the UNFCCC to assist developing nations financially & technologically.

Annex B Countries

Comprising 39 industrial nations with an emissions cap under the Kyoto Protocol.

Less Developed Countries

Countries with limited resources to address environmental/economic difficulties.

Three so-called ‘flexible mechanisms’ were introduced to enable countries to meet their obligation under the Kyoto Protocol

Clean Development Mechanism (CDM)

Under Kyoto, the CDM permits investment in developing countries by Annex B/Annex I countries. Certified Emission Reductions (CERs) can be earned to the extent that the project reduces greenhouse gasses.

Joint Implementation (JI)

Projects by Annex B/Annex 1 countries in other Annex B countries (those economies in transition). The quantifiable emission reductions yield Emission Reduction Units (ERUs).

Emissions Trading

The Assigned Amount Units allocated to a country are tradable and fungible also with CERs and ERUs in Phase II (2008-12). The system is a ‘Cap & Trade’ system where the total amount of emissions is capped. Where the allowance is exceeded, participants may purchase surpluses elsewhere to make good the shortfall.

EUETS

As a signatory to the Kyoto Protocol the EU agreed to a reduction of 8% below 1990 levels of emission. It embarked on the creation of the first Emissions Trading Scheme involving all 27 members. Each country has a fixed number of allowances that it distributed to the relevant companies within the four main sectors, as set out below:

Energy Sector	Metals Sector	Minerals Sector	Others
Combustion (over 20MW thermal, aggregated for all on-site activities) excluding waste combustion	Ores	Cement (over 500t/day)	Pulp
Mineral Oil refineries	Pig Iron & Steel (over 2.5t/hr)	Lime (over 50t/day)	Paper (over 20t/day)
Coke Ovens		Glass (over 20t/day)	
		Ceramics (over 75t/day)	

The operation of the system in the UK (including the allocation process) is the responsibility of Department for Environment Food and Rural Affairs (DEFRA). Under the Scheme, each company must manage its allocation of CO2 allowances. In Phase I, running from 2005-07, a company is granted an annual allowance. Between December 31st and March 31st the following year, the emissions from the company’s operations are independently verified. If the allowance amount is exceeded, the company either has to make good the shortfall by purchasing allowances in the market or face the prospect of a fine (€40/t, rising to €100/t in Phase II). In addition to the fine, the company must give up allowances equal to the excess from the following year’s allowance.

National Allocation Plan

Under the terms of the European Communities (Greenhouse Gas Emissions Trading) regulations 2004 (SI 437/2004), the EU legislation regarding the EUETS was passed into UK legislation. There are currently over 6,000 companies and institutions that are subject to the National Allocation Plan (NAP). Following consultations with the stakeholders and using a published methodology to take into account usage, history and planned developments, DEFRA delivered the final National Allocation Plan in May 2005.

DEFRA apportioned the UK allocation of 736,800,000tCO₂ on the following basis for Phase I (2005-2007):

	Million tons
Power Stations	410.70 m/t
Refineries	59.4 m/t
Offshore	57.3 m/t
Iron & Steel	71.1 m/t
Cement	33.6 m/t
Chemicals	31.2 m/t
Pulp & Paper	15.3 m/t
Food, Drink & Tobacco	11.7m/t
Non-Ferrous	9.3m/t
Lime	8.1 m/t
Glass	6.6 m/t
Services	6.3 m/t
Other Oil & Gas	5.7 m/t
Ceramics	5.4 m/t
Engineering and Vehicles	3.9 m/t
Other	1.2 m/t

95% of the allowances have been allocated free of charge for Phase I. This will drop to 90% for the second period (2008-12).

The NAP comprises of a list of all affected installations in the UK combined with the annual allocation amount.

Each company has an account at a Registry run by The Environmental Agency on behalf of DEFRA. The registries of each EU country will be linked to enable unencumbered trading across the Eurozone.

the market

The key driver to any market is liquidity. Without volume (regular trades) volatility is low and it is extremely difficult to project future market movements. The EUETS was launched in January 2005. There has been a rapid increase in the volumes traded since the start of the scheme. In the three months to February 2007 over 275 million allowances were traded compared to 60 million tonnes traded in the first three months of the schemes operation.

The market is now very liquid, particularly in the spot and futures contracts up to Dec 09. The major players in the market are, of course, the power companies whose requirements dwarf those of the bulk of other participants.

factors affecting price

The factors affecting price action must be considered by all participants when formulating an emissions strategy. The nature of these factors is such that they impact both long term and short term considerations.

energy prices

The relationship between oil, gas and emission allowances is well illustrated by the index graph (Appendix 1). This owes its origins to the fact that the spreads between prices for CO₂, gas and power dictate the economics of electricity production. Whilst it is perhaps too early (in terms of availability of hard data) to formulate a precise and consistent mathematical relationship, the trends are certainly helpful for forecasting purposes.

Power generators

As mentioned previously, the power sector has the largest exposure to the emissions market. The power companies are sophisticated market participants who have to operate daily to maximise returns across a number of fuel sources. Key to these decisions is the relative costs of power versus fuel type – ‘spark’ (gas) and ‘dark’ (coal) spreads.

Since each fuel source emits a different amount of carbon dioxide, it follows that if the power generator selects a relatively ‘dirty’ fuel, its requirement for allowances would necessarily be greater.

It should be remembered that the EUETS is pan-European, consequently decisions by European operators concerning the use of nuclear, wind or hydro for electricity generation will also have an impact.

Switching sources

The essence of the Kyoto Protocol and the EUETS is to reduce emissions generated by industry. For the first time, companies are exposed to an environmental risk expressed in financial terms: ‘the polluter pays’ principle. Consequently, energy consumption and indeed so-called green energy has been catapulted up the corporate agenda. Capital projects designed to switch to environmentally friendly inputs –to gas from oil, for example - may take some time to implement. A company may have to cover an additional allowance requirement in the short term before the fuel switch is effective. Thereafter the company may well find it can operate comfortably within its allocation precluding the necessity to enter the market. The impact on allowance price of such switching is self-evident.

Weather

Short-term volatility in the emissions market may be afforded by the impact of weather. Cold snaps may force power generators to cover demand spikes with coal, increasing their requirement for allowances. The impact of rainfall on the ability of generators to employ hydropower will have a similar influence.

Economic activity

Production capacity data will be a significant pointer in determining the future allowance price. Rationally, a company (or industry) operating at capacity will produce more carbon dioxide than one operating at 50%. Attention to industrial output, demand and European growth will be useful in respect of identifying developing price action trends.

Policy

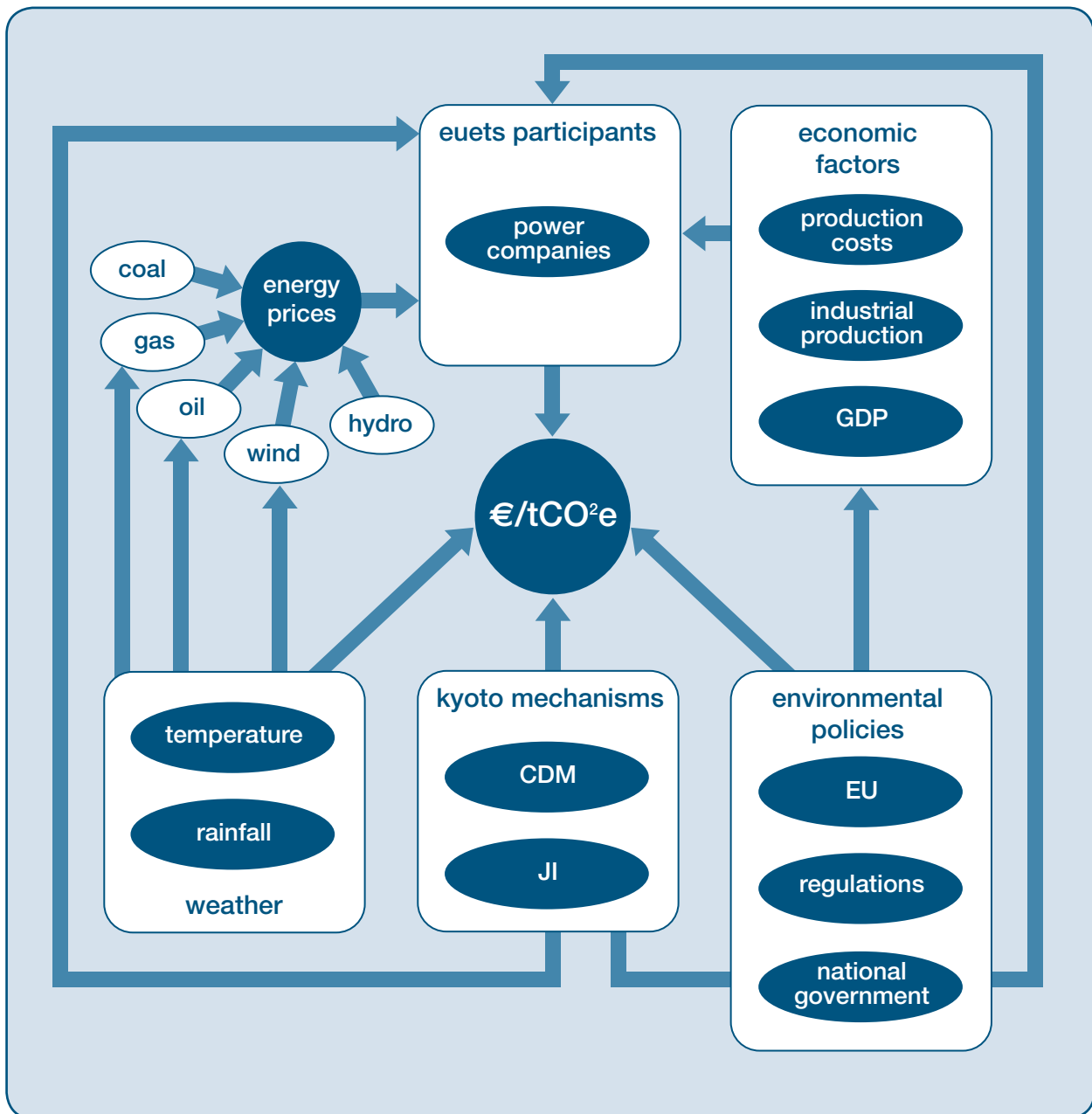
Market observers since the start of 2007 will be well aware of the impact that the negotiations on the various National Allocation Plans have had on volatility. This factor is likely to continue to provide impetus for price movements as the national authorities embark on the allowance allocation for the 2008-12 phase.

Similarly, individual national governments' approach to climate change policy will have significant influence. Commitments to agreed EU targets for the development of renewable energy and Combined Heat & Power (CHP) facilities, and the government measures (direct/indirect) taken to achieve them will impact participant appetite for allowances.

CERs

Certificates of Emission Reductions (CERs) under the Clean Development Mechanism (CDM) mechanism are fungible within the EUETS in Phase II. As an ongoing problem, a logjam in the CDM verification process means that there is a shortage of these offsets available to the market. As these projects gain approval, participants with a requirement for additional allowances may prefer to acquire CERs. The advantage of these instruments is that they are bankable and currently cheaper to acquire than allowances. The main disadvantage lies in the increased risk centred around delivery.

pricing determinant matrix



the market to date

phase 1 emissions price history



The first Phase of the EUETS was regarded as a 'learning by doing' period. Clearly the launch of an ambitious scheme such as was envisaged by the European Commission (EC) was not going to be without problems and the price graph above illustrates clearly the volatility that has been characteristic of the Scheme.

- 1** As registries became operational, power generators appeared anxious to cover a large proportion of their perceived shortages. Limited liquidity initially drove the price up from a launch of around €7.40/tCO₂e to the mid-twenties. This move was fuelled by fears of an overall shortage in the market and forecasts predicting an average price for Phase 1 of around €28/tCO₂e.
- 2** The sharp move upwards drew the attention of investment bank and hedge fund speculators. With selling participants thin on the ground, the market hit a peak of just under €28/tCO₂e when a number of companies from the new European countries received their surpluses and promptly sold them into the market.
- 3** As 2005 drew to a close, each company began to have a clear idea of its position relative to its allocation. High trading volumes were recorded as companies squared their positions. This operation continued up to April 2006.
- 4** Leaks, rumoured to have emanated from the Dutch or French, revealed that the market was excessively long of EUAs. Member States had been over-generous with their allocations. Indeed, only the UK, Ireland, Spain and Austria appeared to have correctly applied the correct allocation criteria in order to deliver a shortage. The market went into free-fall with all bids pulled from the market and investment banks and power companies. The gapping in the market that occurred in mid-May 2006 saw EUAs lose over 70% of its value.

- 5 EC officials moved swiftly to reassure the market and refute the obituaries that had been written by critics of the Scheme. Power generators, having contributed to the drive down in price, moved to buy allowances and the market rose on the return of demand. However, the respite was short-lived as a number of reports were published projecting a significant surplus throughout the first Phase. Additionally, the collapse in crude oil prices (and a corresponding move down in gas) saw demand for EUAs fall further to below pre-launch levels. The second verification period saw prices fall below €1/tCO₂e as the number of companies selling into the market increased.
- 6 The remainder of Phase 1 looks set to see a continuation of the low prices seen since Q4 06. Speculative trading activity has already moved to the second phase and there is a widely held perception that the excess liquidity in the market is more than sufficient to cater for compliance buying. There is likely to be a slight rebound in prices in the compliance period (Jan-Apr 08) as those companies who have done nothing during the whole period seek to cover their short. Failure to do so will result in a €40/tCO₂e fine plus the purchase of EUAs to cover the shortfall. This may see a small recovery in price to around €2/tCO₂e.

the exchanges

In response to the establishment of the EUETS, a number of European exchanges associated with the energy market have extended their product offerings to include emissions trading.

The importance of the exchanges at this stage is that they provide published data that can be utilised as an industry benchmark. The significance of a benchmark is that it opens the door to sophisticated (and long-dated) derivative contracts, facilitating risk management over entire phases of the scheme.

The four major exchanges to have been established are Powernext (based in France), NordPool (based in Norway), EEX (based in Germany) and ECX (based in London at the ICE).

The accompanying table highlights the comparative offerings. It will be noted that minimum contract size is 1000tCO₂. Consequently participation on the exchanges is primarily likely to be restricted to larger operators and financial institutions.

comparison between exchange offerings

Powernext	
Product	
Commodity	EUA (1=1t CO2)
Denomination	Euro/tCO2
Contract Size	1000 EUA
Minimum Tick Size	€0.01
Contracts	
Forwards	No
Spot	Yes
Trading	
System	Global Vision (web-accessible)
Hours	9.00-17.00 CET
Participants	Exchange Members
Trading Confirmation	On-Line
Settlement	
Date	Trading Day
Type	(Physical) Delivery versus payment
Method	<p>Allowances are transferred from the seller account to its transit account and from its transit account to the buyer account. The trade is delivered once the CITL (Community Independent Transaction Log) sends official notice that the trade is complete. The buyer cash account is debited and the Caisse des Depots transit cash account credited. Following this the sellers cash account is credited by the transaction amount.</p>
Clearing	
Counterparty Risk	Transferred to Powernext
Collaterals	Cash account with Caisse des Depots or appoint a settlement bank that has an account with Caisse des Depots
Margin Call	Settlement occurs on trade date
OTC Clearing	
Membership	Exchange Members must enter into a Powernext Carbon Agreement between the member, Powernext and Caisse des Depots
Cost	<p>Membership fees 0</p> <p>Annual Fee of EUR 1,000-3,500</p>

Nord Pool	EEX	ECX
EUA (1=1t CO2)	EUA (1=1t CO2)	EUA (1=1t CO2)
Euro/tCO2	Euro/tCO2	Euro/tCO2
1000 EUA	1000 EUA	1000 EUA
€0.01	€0.01	€0.05
<ul style="list-style-type: none"> • EUADEC-07 (---//---) • EUADEC-08 (---//---) • EUADEC-09 (---//---) • EUADEC-10 (---//---) • EUADEC-11 (---//---) • EUADEC-12 (---//---) 	December 07,08,09,10,11,12	December 07,08,09,10,11,12
EUAAddmmyr (EUA for prompt delivery)	Yes	EFPs (Exchange for Physical)
PowerCLICK™ (internet or fixed line)	Auctions for spot contracts take place on each exchange trading day	ICE Platform
10-15.30 CET	7.30-17.00 CET (Auction 10-10.05)	08.00-17.00 CET
Exchange members (separate membership for EUA trading available)	Exchange Members	Exchange Members
Every trade online registered in Company trade list in PowerCLICK™. Online Clearing reports available via internet in a separate report application.	On-line	On-line
3 trading days after last trading day (T+3) (Physical) Delivery versus payment	2 Trading days after last trading day (T+2) Physical Delivery	3 trading days after last trading day (T+3) Physical Delivery
Seller transfers the allowances to Nord Pool registry account before 4pm C.E.T. on day T. Nord Pool Clearing transfers the EUA's to the buyer's register account on dat T+1. T+2 Payment instructions sent to the banks for seller's payment. T+3 cash available for sellers	Via EEX Ag central deposition account	Via Holding A/c of Selling Clearing Member via LCH a/c in reigistry to Buying Clearing Member.
Nord Pool Clearing ASA (NPC) act as the counterparty in all contracts traded at PowerCLICK™ and contracts traded bilaterally in the OTC market. This means that NPC will guarantee for physical delivery of EUA (against buyer) and for financial settlement (against seller)	Transferred to EEX	Transferred to LCH
Cash deposit in a Pledged Bank Account and/or an On-Demand Bank Guarantee.		
The Daily Margin Call EUA will be calculated for all open positions on the account holders Clearing Account based on Daily Closing Prices. Nord Pool SPAN®1, the risk-based calculation system, will also be applied in the Daily Margin Call calculation in the EUA market. The seller will be allowed to deposit EUAs to Nord Pools account anytime during the trading period of the contract. The deposited EUAs will then be considered in the Daily Margin Call calculation, which will be prorata reduced.	Current Liquidating Margin Additional Margin Trading Margin Intra-day Margin	Initial Margin Variation (Daily margin)
Will be available for standardised EUA contracts (similar to exchange traded products) via the Nord Pool Clearing Desk Application (CDA). The arrangement will similar to the services available for the Nordic power contracts.		
Exchange Member means an entity having entered into an Exchange Membership Agreement with Nord Pool.		
NOK 1,000,000	50,000 (+€2500 if t/o under €2.5mio or €12,500 if over)	IPE Membership as General or Trade Participant €2,500 p.a.

(Sources: Powernext, NordPool, EEX & ECX)

corporate strategy

Exposure to the emissions market can be assessed with reference to four major risk headings:

Market risk

Liquidity: risk of being unable to purchase or sell an allowance when required.

Price uncertainty: Price of emission allowances influenced by myriad unpredictable factors

Credit issues: Forward trades (those settling in December 2007–December 2012) carry counterparty risk, namely the risk that a company might default prior to paying for or delivering an allowance following a trade.

Operational Risk

Concerns Customer Demand and Production issues (factory output etc.): Accurate market forecasts and careful production planning can reduce this risk

Catastrophic Risk

Refers to unforeseen events adversely impacting production, demand etc. These can be either direct or indirect.

Political/Legislative Risk

EU & National policy: The actions of the EU and National Government will have a direct impact upon the operation and enforcement of the EUETS

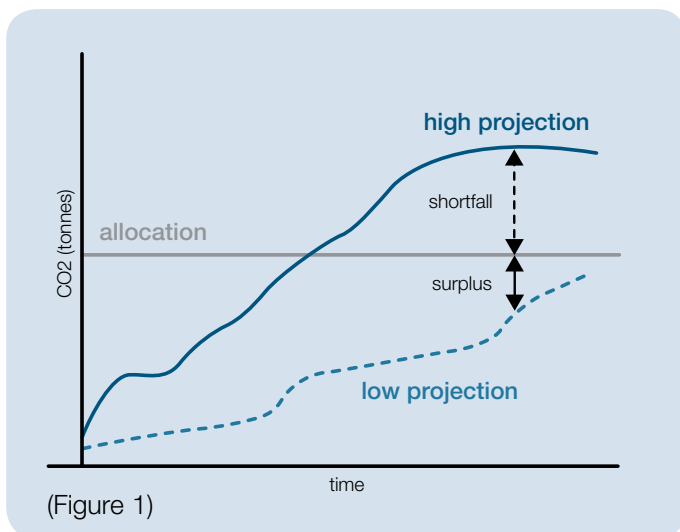
In essence, the company must formulate a view on these risks before finalising a strategy. This process would typically apply to most areas of risk exposure within a company – interest rate, foreign exchange & commodity price risk etc. The additional difficulty lies in the fact that the market is new, not all National Allocation Plans have been finalised and certification/verification and surrender processes represent uncharted territory.

Two key market-specific measures can assist in the formulation of a company's approach to emission allowance management.

Marginal Abatement Cost (MAC) measures the total cost for the company of reducing emissions by one tonne of carbon dioxide. Should the cost be lower than the purchase of additional allowances, the company is clearly in a position to implement emission reduction in a cost-effective manner. Marginal abatement costs are important as they provide companies with information about their costs of abatement versus the cost of buying emissions allowances.

Emissions-to-cap describes the ratio of a company's emissions to the allowance granted under the National Allocation Plan. This number gives a clear indication, *ceteris paribus*, of the likely net position. A number greater than 1 reflects a company in surplus and vice versa.

In reality, of course, a company's position is likely to be affected by changes in levels, patterns and timing of production, either planned or otherwise. The company can project its likely requirement for allowances with reference to historical data. By plotting high and low emission projections versus the given allocation, the company can achieve a sense of what its likely requirement will be (Figure 1).



companies in surplus

Companies with a surplus of emissions (i.e. with an emissions-to-cap greater than 1) are in possession of an asset that has, under the EUETS, been assigned a monetary value. The choice for the company is whether to realise the value sooner or later.

Considerations influencing this decision will include the certainty of projected emissions, market view on price volatility and counterparty availability for the size of transaction.

companies in deficit

For companies in deficit – those with a shortage of allowances – the choices are fivefold:

Buy the anticipated shortage immediately:

This strategy would suit those companies with a view that the price of allowances will increase steeply as the compliance period approaches. The company can buy spot & receive the allowances into their Registry account immediately. Alternatively the company can buy forward (December 07) with settlement occurring at year-end. This latter approach has positive advantages in terms of cash flow.

Wait until December – March (Verification period each year until 2013):

The company may take the view that prices will fall during the Verification period. Similarly the company may be uncertain as to the extent of the required amount of allowances to cover their shortfall. If the estimated number of allowances required is below a thousand (the smallest marketable amount) the company may decide to wait until their emissions have been verified before entering the market for compliance purposes.

Borrow from the next allowance period:

Allowances are not interchangeable between Phase 1 and Phase 2 so this method is only applicable from 2008 on. The allowances for 2009 will be delivered to the relevant Registry accounts in February 2008, before the first Surrender deadline for allowances. The company may decide to use these allowances to meet their obligations for 2008. The inherent difficulty in adopting this approach is that it fails to address the company's short allowance position. The problem is effectively rolled forward, exposing the company to potentially greater price risk. The fact that the sanction for non-compliance is €100/tCO₂e in 2008-12 provides a useful pointer for anticipated future price action.

Do nothing:

Non-compliance in Phase I carries a penalty of €40/tCO₂e. In addition, the following year's allowances are reduced to the extent that the company has exceeded its allowance. In addition to the financial penalty and reputational risk (adverse publicity associated with non-compliance), the cumulative shortage outlined above may additionally adversely impact the company.

Reduce emissions:

A company that finds itself significantly short of allowances must undertake an assessment to determine, utilising MAC outlined above, the costs involved in changing processes to reduce overall emissions. Whilst capital expenditure may initially prove costly, the long-term benefits may well be significant in the context of the continuing operation and extension of the Scheme.

Bank of Ireland Global Markets and emissions

rationale

Bank of Ireland's suite of products covers the full range of treasury products from foreign exchange to interest rate risk management, encompassing both vanilla and derivative products.

With companies increasingly conscious of cost considerations, the rising volatility in energy costs has assumed growing significance in the area of risk management. Global Markets, through ongoing dialogue with our customers, is aware of this new focus and has responded with the establishment of a team dedicated to offering an energy risk management capability.

With the launch of the EU Emissions Trading Scheme in January 2005, a new exposure (and potential risk) emerged for affected companies. The interrelationship between energy prices and emission allowances prompted Global Markets to develop a competency in the new market, designed to service our international client base.

service offering

Global Markets is the first Irish financial institution to offer international participants under the National Allocation Plan an extensive service to facilitate compliance with the EUETS. The service is based around four key elements:

Education:

Global Markets offers extensive and in-depth educational resources to our clients to assist them in developing an understanding of both the structure and operation of the emissions market.

Information:

As with any developing market, the nature of the emissions market will change as it evolves in terms of liquidity and depth. Global Markets will keep abreast of all the changes in order to enable our clients to take advantage of new opportunities as they arise.

Additionally, in keeping with the business model successfully developed for treasury products, Global Markets will offer market commentary and price information.

Strategy:

Each participant will necessarily have specific requirements in respect of its emissions allowances. Global Markets aims to understand these needs and work in partnership with its clients to develop tailor-made strategies.

Execution:

Global Markets offers a one-stop shop for all trading requirements, whether on a spot or forward basis. As the derivative capability emerges, Global Markets will offer long-term hedging solutions. The execution service extends to those with less than marketable amounts to transact, ensuring that access to the market is afforded to all participants.

accounting

The EUETS presents particular difficulties in terms of accounting. The root of the problem lies in the nature of the emission allowance itself: it is a Government-granted license but also a tradable financial instrument.

The International Accounting Standards Interpretations Committee (part of the IASB) issued **IFRIC 3**, which covers the area of emissions.

In accounting terms, the allowance is considered an intangible asset as per IAS 38 and should be recorded at a fair market value (MV). There is no requirement, however, to re-measure these assets to reflect changes in their MV.

Because the allowances are granted free of charge by the central authority (in the case of the UK, DEFRA) the difference between the market value and the amount paid (zero) is covered by **IAS 20** (Government Grants). The release of this grant to income is by reference to the initial value of the allowances.

The obligation to deliver sufficient allowances against the recorded emissions is treated as a liability, as defined by IAS 37. The charge to income to reflect the increasing liability is measured by reference to the current MV of the allowances.

It is this discrepancy (lack of symmetrical treatment) that currently creates an accounting mismatch. Since an intangible asset is measured at the cost or revalued amount (through equity) and the liability is measured at market value (through income) at the end of a compliance period, movements in price will impact the income statement and the balance sheet. Price volatility and liquidity will therefore influence the income statement.

The key to the resolution of this problem would seem to be with the provisions of IAS 20 and IAS 38, which require adjustment to eliminate the effect of the mismatch. Currently both standards are under review by the IASB with proposed amendments involving the ability to re-measure the intangible asset at MV through the income statement.

documentation

Currently there are three distinct forms of legal document used in the over-the-counter emissions market:

1. European Federation of Energy Traders (EFET) Allowance Appendix (March 2004): This form is an appendix to a master agreement for the power sector in Europe. Given that the generating companies dominate the emissions market, this documentation type is widely used at present. It is based on both European Civil law and English common law.
2. International Swap Derivatives Association (ISDA) Long Form Confirmation of OTC Physically Settled EU Allowance Transactions: This form of documentation is standard amongst the financial sector and designed for use with the Master Agreement between parties. Governing law is at the parties' choosing, but usually New York or English.
3. International Emissions Trading Association (IETA) Agreement for the EU Scheme (July 2004): The governing law is English.

When selecting a preferred agreement, the essential differences between the three documentation forms should be reviewed in the context of the following relevant areas:

- Events of Default
- Termination Events/Payments
- Liability
- Payment Netting
- Settlement Disruption Events

The key to a truly liquid market is, of course, uniformity. Negotiations are currently continuing with the aim of delivering a harmonised agreement. This standardisation of documentation across industrial entities, banking institutions and energy generators should enhance the prospects for the emissions market.

future trends

The emissions market in Europe has developed quickly into a robust model for carbon trading. The second Phase is set to deliver an annual shortage of around 150million tonnes, a shortage that has been cleverly engineered by the EC scrutiny of the Member States' National Allocation Plans and a restriction on the number of CERs that companies can use to meet their liabilities under the Scheme. This situation should see the initiation of real carbon abatement in Europe.

The prospect of the inclusion of the aviation sector in 2010 will further galvanise the position of the EUETS as the pre-eminent trading mechanism for carbon.

Developments in the US continue to provide an exciting avenue. California is pressing ahead with direct legislation on carbon and on the East Coast REGGI, the regional greenhouse gas initiative centred on the New England states, seeks to replicate a market-based mechanism to deliver abatement.

In New Zealand and Australia, public opinion and political will seem to be moving these countries towards an emissions market of their own.

As we enter Phase 2, the successor to the Kyoto Protocol has begun to be discussed. Should we see a change in White House policy in the upcoming Presidential election, the prospect of a single, global carbon market, achieved through the amalgamation of the various regional systems, appears a very real one.

chronology of clean development mechanism

1	Planning a CDM project activity	CDM project participants plan a CDM project activity according to criteria laid down
2	Preparing the project design document	Project Design Document (PDD) is formatted according to CDM rules
3	Getting approval from each party involved	CDM project participants obtain approval including that of the host country
4	Validation & registration	Project is validated independently on the basis of CDM criteria and the PDD Where the project is validated, the project is registered by the CDM executive board (EB)
5	Monitoring a CDM project activity	CDM project participants collect and archive relevant data required to calculate GHG emission reductions
6	Verification & Certification	Verification of the emissions reductions from the project is undertaken independently at periodic intervals
7	Issuance of CERs	EB will issue CERs equal to verified emission reductions less 2% to assist developing countries in their fight against climate change
8	Distribution of CERs	CERs distributed to CDM project participants

glossary

A

Abatement: A reduction in the quantity or intensity of greenhouse gas emissions

Absolute Targets: Fixed limits for emissions imposed on an industry or country.

Activities Implemented Jointly (AIJ): a UNFCCC pilot program established in 1995 allowing private entities in one country to reduce, sequester, or avoid emissions through a project in a different country.

Adaptation: Adjustments in practices, processes, or structures of systems to projected or actual changes of climate. Under Kyoto developing countries are to develop National Adaptation Plans of Action.

Additionality: Under JI & CDM, credits to be provided on the basis that reductions achieved by projects are “additional to those that otherwise would occur”. This definition in the Marrakesh Accord is developed to include a distinction between environmental additionality and economic/financial additionality.

Adjustments: Changes in values in national inventories made by an Expert Review Team (as defined in the Kyoto Protocol) to correct mistakes in the originally reported value. The Kyoto Mechanism will not be available to a country where the overall adjustments exceed 7% of total reported emissions.

Afforestation: The planting a forest in an area on bare or cultivated land which has not been forested in recent history. Afforestation and reforestation are one of the tools used by policymakers to combat global warming.

Allocation: The number of credit or allowance permits provided to a greenhouse gas emitter by a regulatory body during a specific compliance period. Occurs primarily through grandfathering or auctioning.

Allowance: A transferable instrument under a closed system granting permission to emit one tonne of carbon dioxide equivalent during a specified period. Allowances are surrendered to a regulatory authority for the purpose of achieving compliance with an emission limit. The baseline and allocation steps are critical to all participants because they result in the allocation of the “currency” which then forms the basis for the system.

Annex 1 countries: Developed nations who have agreed to cap their emissions under the Kyoto Protocol.

Annex A: A listing of the greenhouse gases (GHGs) regulated by the Kyoto Protocol: Carbon dioxide, Methane, Nitrous oxide, Hydrofluorocarbons, Perfluorocarbons and Sulphur hexafluoride. The base year for calculating emission reduction commitments is 1990 for the first three gases and 1995 for the other three.

Annex B Countries: The 39 emissions-capped industrialised countries and economies in transition listed in Annex B of the Kyoto Protocol. Emission reduction obligations range from an 8% decrease for various European nations to a 10% increase (Iceland) based on 1990 levels during the years 2008-2012.

Annex I: Countries The 36 industrialised countries and economies in transition listed in Annex I of the United Nations Framework Convention on Climate Change (UNFCCC or the Convention). Annex I of the Convention and Annex B of the Kyoto Protocol are used interchangeably.

Annex II Parties: Rich nations who under the UNFCCC have a duty to help developing countries with financial/technological resources. They include the 24 original OECD members plus the European Union.

Article 6: (Kyoto Protocol) defines Joint Implementation.

Article 12: (Kyoto Protocol) defines the Clean Development Mechanism

Article 17: (Kyoto Protocol) defines international emissions trading between Annex I countries. Trade is done in AAUs.

Assigned Amount (AA): Quantified binding emissions budget of an Annex B country under the Kyoto Protocol. Measured in tons of CO₂ equivalent.

Assigned Amount Units (AAUs): That part of a country's Assigned Amount used for international emissions trading. One AAU is defined as one ton of CO₂ equivalent.

Auctioning: Method for issuing emission permits to participants in an emissions trading regime.

Avoided Emissions: Those that would have been emitted under a business but were avoided due to the implementation of an emission reduction strategy.

B

Banking: Saving an Assigned Amount or CER for future use in anticipation that these will accrue value over time. CERs and ERUs can only be banked up to 2.5% of a country's Assigned Amount.

Barriers: Circumstances preventing achievement of emission reduction – can be financial, technical, institutional or cultural.

Base year: Year for which the first national greenhouse gas inventory has been established and which serves as base for calculation of emission targets. In the UNFCCC and the Kyoto Protocol it is 1990.

Bio-fuel Extracted from dry organic matter or combustible oils produced by plants.e.g. alcohol (from fermented sugar).

Biomass Energy generated from organic waste matter.

Borrowing: Borrowing refers to using future emissions reductions from future commitment periods in order to meet current emissions targets.

Bunker fuel: Fuel supplied to ships and aircraft, both domestic and foreign. Ships are not counted under the emissions targets of the Kyoto Protocol.

Business As Usual Scenario: The calculated estimate of an entity's future and current emissions under normal operating circumstances.

Byrd-Hagel Resolution: June 1997 by the US Senate not to ratify the Kyoto Protocol unless it involved committed and significant participation by developing countries.

C

Cancellation: Deletion of emissions permits without being used.

Cap and Trade: Is a closed system that involves trading of emission allowances that are limited or capped. The cap is established by a regulatory body at a level 50-85% lower than the historic level of emissions. Allowances are created to account for the total allowed emissions. Trading occurs when an entity has excess allowances, and sells them to an entity requiring allowances due to growth in emissions or an inability to make cost-effective reductions.

Cap: Absolute emissions limit.

Carbon cycle: The complex series of reactions by which carbon passes through the Earth's atmosphere, biosphere, hydrosphere, and lithosphere.

Carbon dioxide (CO₂) is a long-lived gas that is considered the main 'greenhouse gas' as it retains solar energy in the atmosphere. It is released as a result of combustion of fossil fuels, industrial processes and land-use changes.

Carbon Dioxide Equivalent (CO₂e) The universal unit of measurement used to indicate the global warming potential (GWP) of each of the 6 greenhouse gases.

Carbon Financial Instrument (CFI): The term used to describe the ECX CFI spot and futures contracts listed by the IPE and traded on the IPE's electronic platform.

Carbon Intensity: The amount of carbon by weight emitted per unit of energy consumed. A common measure of carbon intensity is the weight of carbon per British thermal unit (Btu) of energy.

Carbon Output Rate: The amount of carbon by weight per kilowatthour of electricity produced.

Carbon sequestration: The uptake and storage of carbon. Forests are the most common sink, also soils, peat, perma-frost and ocean water.

Carbon Sink: Any reservoir that absorbs or takes up released carbon from another part of the carbon cycle.

Carbon source: Any part of the carbon cycle releasing carbon to some other part of the carbon cycle.

Carbon tax: Surcharge or levy proportional to CO₂ emissions,

CER: Certified Emission Reduction. Annex I investors in Clean Development Mechanism (CDM) projects can earn Certified emission reduction units (CERs) for the amount of greenhouse emission reductions achieved by their CDM projects, provided they meet eligibility criteria.

Certification: Process of independent third party verification of emissions.

CITL (Community Independent Transaction Log): An electronic database established by the EC for the purpose of recording transfers of emission allowances within and across national registries operated by EU Member States.

Climate change: Change in climatic variables (e.g. temperature, precipitation).

Climate system: The atmosphere, the oceans, the biosphere, the cryosphere, and the geosphere, together make up the climate system.

Cogeneration: A process involving the use of waste heat from electric generation, such as exhaust from gas turbines, for industrial purposes or district heating leading to a high energy efficiency. Term used interchangeably with Combined Heat and Power.

Commitment Period: Five year Kyoto Protocol Commitment Period is scheduled to run from calendar year 2008 to calendar year 2012 inclusive.

Commitment: Emissions target.

Compliance: The periodic demonstration by an operator of an emitting installation that it has conformed with the rules of the EU Emissions Trading Scheme.

Conference of the Parties (COP): The supreme body of the UN Framework Convention on Climate Change.

COP-1 Berlin 1995.

COP-2 Geneva 1996.

COP-3 Kyoto 1997.

COP-4 Buenos Aires 1998.

COP-5 Bonn, 1999.

COP-6 The Hague 2000.

Countries with Economies in Transition: Countries undergoing the process of transition to a market economy but who are also classified as Annex I parties to the UNFCCC.

D

Damage function: The relation between changes in the climate and reductions in economic activity relative to the rate that would be possible in an unaltered climate.

Deforestation: The removal of forested areas, resulting in the loss of an important sink for carbon dioxide

during photosynthesis.

Desertification: Progressive destruction or degradation of existing vegetative cover to form desert.

Developed Countries: Industrialised countries (identified in Annex I and Annex B of the Kyoto Protocol).

Developing Countries: Those in the process of industrialisation which have constrained resources to address their economic and environmental problems. Developing countries also referred to as Less Developed? countries which are in the process of becoming industrialised but have constrained resources with which to combat their environmental problems.

Downstream: A downstream emissions trading strategy? targets energy consumers rather than suppliers.

Dynamic baseline: A forecast baseline whose level varies with time.

E

Early Action Reduction of emissions via CDM, JI or trading before the start for the Kyoto Commitment Period.

Economies in Transition (EIT): The countries listed in Annex I or Annex B that are undergoing the process of transition to a market economy: Belarus, Bulgaria, Croatia, Slovenia, Ukraine.

Ecosystem: The complex of plant, animal, fungal, and microorganism communities and their associated non-living environment interacting as an ecological unit.

Eligibility Criteria: Under the Kyoto Protocol, criteria that must be met by an emissions reduction project to produce reductions which can be banked, offset or traded.

Emission Allowance: The total emissions permitted to be released by an emission source within a given period.

Emission Cap: A regulatory device setting a ceiling on emissions that can be released into the atmosphere within a given period.

Emission credit: Equivalent to 1 tonne of carbon.

Emissions Coefficient: A unique value for relating emissions to activity data in terms of a standard rate of emissions per unit of activity.

Emission: The release of greenhouse gases into the atmosphere from sources in an installation.

Emission factor: A coefficient that relates the activity data to the amount of chemical compound which is the source of later emissions. They are used for benchmarks.

Emission Forecast: The forecasts of emissions produced by an emitter for its internal management purposes. Forecasts are hypothetical and incorporate knowledge about the firm's future operational, regulatory and economic impacts to determine emission projections.

Emission intensity: Equivalent CO₂ emissions per unit of Gross Domestic Product (kg-CO₂/\$-GDP).

Emission Leakage: This refers to emission reductions in one location being offset by an increase in emissions in another.

Emission permit: A tradable entitlement of an individual firm to emit a specified amount of a substance.

Emission Reduction Unit (ERU): A specified amount of greenhouse gas emissions reductions achieved through JI per Article 6 of the Kyoto Protocol.

Emission Targets: Limits imposed on emitters by a regulatory body.

Emission Taxes: Surcharge or levy placed on emissions sources on a per tonne basis. The greater the level of the emissions tax, the greater the incentive to reduce emissions.

Emissions timeline: The number of years over which emission credits resulting from a JI or CDM project

accrue.

Energy taxes: Taxes on energy carriers or energy use/content.

Enhanced greenhouse effect: An increase in the natural process of the greenhouse effect, through by human activities, whereby greenhouse gases are being released at a far greater rate than would occur naturally.

Environmental additionality: Difference between baseline emissions and actual emissions for a JI/CDM project.

Equivalent CO₂: The amount of CO₂ that would cause the same amount of radiative forcing as the given mixture of other greenhouse gases.

ERU: Emission Reduction Unit.

EUETS: European Union Emissions Trading Scheme. This Scheme involves the 25 Member States who have agreed to establish a Scheme for the trading of emission allowances under the auspices of the Kyoto Protocol mechanisms.

F

Fixed baseline: A baseline whose rate is fixed at the start of a project for its duration.

Flexibility Mechanisms: The Kyoto Protocol provides for flexibility in how emissions reductions are achieved via three mechanisms: CDM, JI & emissions trading.

Forcing mechanism: A natural process that alters the energy balance of the climate system.

Forward Contract: Purchase or sale of a specific quantity of reductions, offsets, or allowances at the current or spot price, with delivery and settlement scheduled for a specified future date.

Fossil fuel: Fuels derived from organic compounds containing carbon and hydrogen that were laid down in the Earth's crust during past geological periods by formerly living plants and animals. Includes coal, petroleum, natural gas and oil.

Fuel Cycle: Refers to the total life of a fuel in all of its uses and forms.

Fuel Switching: The substitution of conventional and existing technologies for more efficient and less carbon-intensive fuel technologies.

Fugitive Emissions: Unintended gas leaks from the processing, transmission, and/or transportation of fossil fuels. Fugitive emissions are intentional or unintentional releases of gases from anthropogenic activities such as the processing, transmission or transportation of gas or petroleum.

Fungibility: The property whereby all Kyoto Mechanisms can be traded on a unified international market.

G

Gaming: Actions or assumptions taken by a project developer to artificially inflate the baseline (and therefore the credits from the project).

General Circulation Model: Computer program that attempts to mathematically simulate the global climate.

General Equilibrium Model: Economic model used to calculate macroeconomic costs of greenhouse gas reduction.

Geosphere: The soils, sediments, and rock layers of the Earth's crust, both continental and beneath the ocean floors.

GHG reduction potential: Possible reductions in emissions of GHGs that can be achieved through the use of technologies and measures.

GHG: greenhouse gases.

Global Warming Potential: An index comparing the relative potential of the 6 greenhouse gases to contribute to global warming.

Global Warming: Continuous gradual rise of the earth's surface temperature thought to be caused by the greenhouse effect and responsible for changes in global climate patterns. Thought to have increased by 0.7 degrees Celsius over the last one hundred years.

Grandfathering Method for issuing emission permits to emitters and firms in a domestic trading scheme according to their historical emissions.

Greenhouse Effect: Impact of human activities that cause certain gases to be released and trapped in to the Earth's atmosphere.

Growth baseline: For Developing Countries, a baseline that is related to the relative growth in the country rather than an absolute figure.

H

Host country: The country in which a CDM/JI/AIJ Project is located.

Hybrid baseline: A baseline made up of different components that could be applied to a number of projects.

Hydrosphere: That portion of the Earth that consists of water.

I

Independent third party: Certifier in the context of JI and CDM projects.

Industrialised Countries: Annex I countries.

Infrared radiation: Radiation emitted by the Earth's surface, the atmosphere and by clouds.

Installation: A stationary facility where one or more activities involving energy combustion, production; processing of ferrous metals; production of cement clinker; manufacture of glass including glass fibre; manufacture of ceramic products; production of pulp from timber or other fibrous materials and paper and board production; and other specified facilities.

Intergovernmental Panel on Climate Change (IPCC): The body responsible for the scientific and technical assessment underlying the UNFCCC.

International Emissions Trading: Emissions trading as defined in Article 17 of the Kyoto Protocol.

Inventory: Typically, a national inventory is the register of sources and sinks of greenhouse gases in a particular country.

Issuer: Party that allows a transfer of parts of its assigned amount (AAUs) to another Party.

J

JI: Joint Implementation. This is a project-based mechanism developed under the Kyoto Protocol designed to assist Annex 1 countries in meeting their emission target.

JUSSCANNZ Non-European Union industrialised nations in the Kyoto Protocol negotiations including Japan, United States, Switzerland, Canada, Australia, Norway, and New Zealand. Iceland, Mexico and the Republic of Korea.

K

Kyoto Commitment Period: A period in which Annex B countries have committed to reduce their collective emissions of greenhouse gases by an average of 5.2%.

Kyoto Forest: A forest planted after January 1, 1990 under Article 3 of the Kyoto Protocol.

Kyoto Mechanisms: Also known as Flexibility Mechanisms: Clean Development Mechanism (Article 12), Joint Initiative (Article 6) & Emissions Trading (Article 17).

Kyoto Protocol: Specifies the level of emission reductions, the deadlines and methodologies signatory countries are to achieve.

L

Land Use, Land Use Change and Forestry: Under the Kyoto Protocol land use, land use change and forestry activities that require or allow the net GHG emissions from sinks to be accounted for by Parties in meeting their emission targets.

Leakage: “measurable and attributable” net change of emissions outside the project boundary of a CDM project.

Legally binding targets: Kyoto Protocol emissions targets that are legally binding and subject to sanction for non-compliance.

Lithosphere: The solid part of the Earth, consisting of rocks, soil and sediments.

M

Marginal Abatement Cost: Measures the cost of reducing emissions by one tonne of CO₂. The sum of these costs versus total tonnes abated creates a firm’s marginal abatement cost curve. The lower the curve, the more effective the firm’s emission reduction strategies

Market barriers: Policies and legislation that impede the adoption of processes which would reduce GHG emissions.

Market-based incentives: Measures including subsidies, emissions taxes, emissions trading in order to encourage the adoption of strategies to reduce GHG emissions and thus overcome market barriers.

Marrakesh Accords: Rules and regulations fleshing out the Kyoto Protocol.

Means the mechanism by which one or more operators of installations involved in similar activities are allowed to group the total emissions from their installations for the purposes of compliance.

Methane Recovery: The capture and re-use of methane emissions either through cost-effective management methods or through power generations.

Mitigation: A measure taken to avoid or reduce the release or impact of pollutants.

Monitoring: Relates to the periodic measurement, assessment and recording of emissions and emission reductions by an emitting firm or an emission reduction project.

N

National Allocation Plan: A plan based on objective and transparent criteria by each EU Member State stipulating the total quantity of allowances that it intends to allocate for that period and how it will allocate them.

Non-Annex 1 countries: Developing nations that do not have to agree to the Kyoto Protocol emissions caps.

Non-Annex B countries: Those that do not currently have binding emission reduction targets.

O

Offset Ratio: Total emissions that must be secured relative to the on-site emission increase.

Offset: A unit of GHG emissions created when a source makes voluntary, permanent emissions reduction.

Organisation for Economic Cooperation and Development: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Korea, Japan, Luxemburg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

P

Permit: Certificates of operation that allowing the holder to operate a facility provided they do not exceed a specified rate (eg. kilograms/tonnes per day).

Petroleum: A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products.

Photosynthesis: The biochemical process in which green plants (and some microorganisms) use energy from light to synthesise carbohydrates from carbon dioxide and water.

Polluter Pays Principle: Those who cause pollution should offset its effects by compensating for the damage incurred, or by taking precautionary measures to avoid creating pollution.

Process Change: An improvement of the emissions associated directly with a manufacturing process.

Project: Any activity, undertaken through the Kyoto Protocol's project-based mechanisms (i.e. CDM and JI), that can generate emissions credits based on emission reductions (or sink enhancement) compared to what would have occurred otherwise.

Q

Quantified Emissions Limitation and Reduction Commitments: Legally binding targets and timetables under the Kyoto Protocol for the limitation or reduction of greenhouse gas emissions for Annex B countries.

R

Radiation balance: The difference between the amount of radiation absorbed by the Earth's surface and the amount re-emitted as infrared.

Reference Year: Benchmark year on which emission reduction targets are established. The Kyoto protocol uses 1990.

Reforestation: The act of restoring indigenous forests to lands originally covered by forests. Under the Marrakesh Accords, reforestation applies if an area has been without forest cover for less than 50 years.

Registration: Official acknowledgement by the CDM Executive Board that a projects fulfils the CDM criteria.

Registry: National registries can be administered by any private organisation. They must contain the following accounts: Party holding account; Legal entity holding accounts; Cancellation accounts; Retirement accounts for each commitment period.

Renewable Energy: Electricity that is generated using renewable energy sources These include: water (hydroelectricity), wind, the sun (solar energy), tides and geothermal sources. Some combustible materials such as biomass can also be considered renewable.

Renewable Energy Certificates: Represents a unit of electricity generated from renewable energy with low nett greenhouse gas emissions. One REC represents 1 megawatt-hour (or 1000 kilowatt hours).

Reservoir: Greenhouse gas storage locations within the biosphere such as oceans, soils, and forests.

S

Secretariat: UNFCCC Secretariat.

Sequestration: Process by which a substance is removed from the free state and tied up in some other material.

Sinks: Any process, activity or mechanism that removes a greenhouse gas from the atmosphere.

Static Baseline: Assumes that business conditions are to remain constant throughout the lifetime of the project.

Stratosphere: Region of the atmosphere between the troposphere and the mesosphere. It extends from an altitude of about 15 to 50 kilometres.

Surrender: The transfer of a number of allowances equal to a company's annual emissions through the registry.

T

Technology transfer: Process by which energy-efficient technologies and processes developed by industrialised nations are made available to the less-industrialised nations.

Tonne year: Calculates the overall cooling effect caused by sequestration of a ton during one year.

Total Inputs of Energy: Use of energy in the production of heat, steam, power, or the generation of electricity.

Tradable Emission Permits: Authorisation allowing an emitter to emit a specified number of tonnes of emission, once those tonnes have been emitted, the permit expires.

Tree rings: Using tree rings, past climate changes can be reconstructed on regional scales for the last millennia.

Troposphere: The lowest layer of the atmosphere, extending from the Earth's surface to an altitude of about 15 kilometres.

U

UNFCCC: United Nations Framework Convention on Climate Change established in June 1992 at the Rio Earth Summit.

UNFCCC Secretariat: Located in Bonn and employs experts who organise the international climate negotiations.

Unilateral CDM: CDM where host country sells CERs on its own without a project investor from an Annex I country.

Upstream: Refers to the point where fossil fuels enter the economy.

V

Validation: Assessment by an independent certifier of a CDM project design document, containing its baseline and monitoring plan before the project can be registered by the Executive Board.

Verification: Provides independent assurance that actual or expected emission reductions have been/will be achieved from an emission reduction project during a specified period.

emissions on the web

<http://www.carbon-financeonline.com>

<http://www.cleanerandgreener.org>

<http://www.climatechange-capital.com>

<http://www.climnet.org/EUenergy/ET.html>

<http://www.co2e.com>

<http://www.corporate-env-strategy.com>

<http://www.defra.gov.uk/environment/climatechange/>

<http://www.eex.de>

<http://www.efet.org>

<http://www.energytrainingnetwork.com>

<http://www.ert.net/ghg/index.html>

<http://www.europa.eu.int/comm/environment>

<http://www.europeanclimateexchange.com>

<http://www.evomarkets.com>

<http://www.greentie.org>

<http://www.ieta.org>

<http://www.natsource.com>

<http://www.norpool.com>

<http://www.pointcarbon.com>

<http://www.powernext.fr>

<http://www.thecarbontrust.co.uk>

<http://www.unfccc.int>

<http://www.vertisfinance.com>

appendix



holding accounts

The CERs are transferred to an account in an electronic registry established by the Executive Board. This registry is called the International Transaction Log (ITL) and is currently being linked to the Community International Transaction Log (CITL) which handles the EUAs in the EUETS. By linking the ITL with the CITL, buyers of CERs can use them to offset against liability under the EUETS.

Account holders with the ITL will be designated a unique account number and a register of all CERs held will be implemented. It should be noted that each CER will have a distinct registration number.

settlement

CERs are normally traded for delivery 1st December of the year concerned. Payment is then normally made 10 days after delivery. Occasionally payment will be 5 days after delivery and sometimes even the 20th of the following month. However the rule of thumb is 10 days after delivery.

certificates of emission reduction

Certificates of Emission Reduction (CERs) are issued to a project in a Developing Country (as defined in the Kyoto Protocol) which reduces emissions in that country. CERs are issued to the extent that carbon savings are made.

The projects are submitted to the UN for assessment and validation in terms of the methodology employed and assurance that the proposed carbon savings can be made. Only when verification is received can the CERs be issued. Once issued, the CERs can be sold into the EUETS market to companies with a deficit, or to national governments who require carbon credits to meet its commitment under the Protocol.

types of project

TYPE I - RENEWABLE ENERGY PROJECTS

I.A. Electricity generation by the user

I.B. Mechanical energy for the user

I.C. Thermal energy for the user

TYPE II - ENERGY EFFICIENCY IMPROVEMENT PROJECTS

II.A. Supply side energy efficiency improvements - transmission and distribution

II.B. Supply side energy efficiency improvements - generation

II.C. Demand-side energy efficiency programmes for specific technologies

II.D. Energy efficiency and fuel switching measures for industrial facilities

II.E. Energy efficiency and fuel switching measures for buildings

II.F. Energy efficiency and fuel switching measures for agricultural facilities and activities

TYPE III - OTHER PROJECT ACTIVITIES

III.A. Agriculture

III.B. Switching fossil fuels

III.C. Emission reductions by low-greenhouse gas emitting vehicles

III.D. Methane recovery

III.E. Avoidance of methane production from biomass decay through controlled combustion

types of CER

There are three main types of CER.

Primary CER:

These refer to CERs which are owned directly by the project sponsors. In buying the CERs directly from a specific project factors that need to be taken into account in order to determine what price should be paid include: Type of project; Country risk and Stage of project.

Non-Guaranteed CER:

These CERs are typically generated by sales of primary CERs by the project developer or financier who wishes to spread the risk of the development. Typically they trade at 78% discount to the Dec 2009 EUA which reflects the fact that delivery will depend on the number of CERs to be delivered in respect of the project (i.e. directly linked to the success of the project).

Guaranteed CER:

These are guaranteed by an investment grade counterparty and as such carry no risk from the project developer. Because the risks are to the bank counterparty, none of the due diligence associated with primary CERs is applicable. These CERs are typically quoted at a discount of around 85% of the Dec 2009 EUA.

Aforestation CER;

These are temporary CERs relating to plantation & differ in respect to the other CERs in that they are non-permanent. As such they trade at a significant discount to the standard CERs.

CER trading

Total CER issuance to date is 44,750,472t/CO₂e.

CERs are traded bilaterally because of the many different factors that prevail. Issues of country risk, project efficiency and type all contribute to the pricing dynamic.

Because they typically trade at a discount to EUAs they are an attractive proposition for companies short in Phase 2. The mechanism by which CERs will be delivered into the EUETS is the International Transactions Log (ITL) which is expected to be operational in the next couple of months. When operational, CERs will be transferred across the ITL into the EUETS and treated in the same way as EUAs in terms of being registered.

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